



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.               | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------|-------------|----------------------|---------------------|------------------|
| 10/567,835                    | 02/08/2006  | Jan Boris Rudkowsky  | LE/se030100us       | 2086             |
| 30996                         | 7590        | 07/06/2009           | EXAMINER            |                  |
| ROBERT W. BECKER & ASSOCIATES |             |                      | CHANG, HANWAY       |                  |
| 707 HIGHWAY 333               |             |                      |                     |                  |
| SUITE B                       |             |                      | ART UNIT            | PAPER NUMBER     |
| TIJERAS, NM 87059-7507        |             |                      | 2881                |                  |
|                               |             |                      |                     |                  |
|                               |             |                      | MAIL DATE           | DELIVERY MODE    |
|                               |             |                      | 07/06/2009          | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/567,835             | RUDKOWSKI ET AL.    |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Hanway Chang           | 2881                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 May 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 9-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 9-17 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 08 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

### ***Response to Arguments***

Applicant's arguments filed 05/20/2009 have been fully considered but they are not persuasive. Applicants have argued that the primary reference of Hillman (US Pat. 4,336,223, hereinafter Hillman) does not teach or suggest a plurality of UV emitters arranged in groups in a single flow channel. However, Fig. 4 of Hillman shows the arrangement of the UV emitters in the flow channel. It should be noted that the flow of fluids are depicted by the arrows throughout the figure. It can be seen that the fluids are being flowed from the inlet (generally found near reference number 25) along the UV emitter tubes (44 and 45) in the same direction, then redirect to flow along UV emitter tubes (46 and 47) to the outlet (generally found near reference number 25' or 27). It should be noted that Hillman has disclosed that reference number 56 is a closure (see col. 6, lines 24-26) and no fluids flow through the closure. This system is to be viewed as a single flow as there is effectively only one path through which the fluids can flow from the inlet to the outlet. Furthermore, since the flow direction has been established, it can be viewed that the UV emitters are in fact arranged in groups (44 and 45 as one group, 46 and 47 as a second group) based on the flow direction of the fluids.

Furthermore, applicants have argued that the elongated sensor arrangement must be arranged in the single flow channel to monitor the UV emitters. However, Figs. 2-5 of Hillman depict such an arrangement. It can be seen that each UV emitter (44-47) has a corresponding sensor (63a-d) along the previously established single flow channel.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillman (US Pat 4,336,223, hereinafter Hillman) in view of Prieve et al. (US Pat 6269680, hereinafter Prieve).

Regarding claim 9, Fig. 4 of Hillman discloses a device for the UV treatment of fluids comprising a plurality of cylindrical UV emitters (44, 45, 46, and 47) (see col. 4, lines 63-68) that are arranged in groups in the single flow channel, wherein longitudinal axes of the UV emitters (44-47) are disposed substantially parallel to one another such that the UV emitters (44-47) of a given group are disposed in a plane. Fig. 2 of Hillman discloses at least one elongated sensor arrangement (13) also arranged in the single flow channel and adapted to monitor an operating state of the UV emitters (44-47, which are enclosed by tubes 14-17 respectively), wherein the at least one elongated sensor arrangement (13) is spaced from and parallel to one of the groups of the UV emitters (44-47), wherein the at least one elongated sensor arrangement (13) extends substantially transverse to the longitudinal axes of the UV emitters (44-47) of the adjacent group, and wherein the at least one elongated sensor arrangement (13) is provided with a separate UV sensor (63) for each UV emitter of that group (see col. 6,

lines 24-26). It should be noted that the emitters are to be grouped by the direction of the flow of fluids (shown by the arrows within the tubes of Fig. 4), wherein the lower two tubes make one group, and the second group are the upper two tubes. It should be further noted that the elongated sensor arrangement (13) lies in a plane which is parallel to the plane the row of emitters resides in, while still being transverse to the longitudinal axes of each individual emitter. It should be further noted that this interpretation is consistent with the applicants disclosure (see figure 1). Fig. 8 of Hillman discloses at least one unit connected with the at least one elongated sensor arrangement (13) and adapted to control and/or regulate the UV emitters (44-47) (see col. 7, lines 37-59).

A difference between Hillman and the claimed invention is that Hillman does not explicitly disclose the UV emitters are low-pressure mercury UV emitters. However, Hillman does disclose that the UV emitters are most effective at destroying micro-organisms when the emitters radiate at 2,537 angstroms, which is 253.7 nanometers. Prieve teaches that low pressure mercury lamps emit at 253.7 nanometers (see col. 13, lines 44-50). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Hillman by having low pressure mercury lamps to emit UV radiation at 254 nanometers for the purpose of using a well known radiation source.

Regarding claim 10, a further difference between Hillman and the claimed invention is the at least one elongated sensor arrangement (13) is disposed in a quartz tube. However, it is well known in the art that quartz is transparent to UV radiation (example: see col. 4, lines 50-55 of Hillman). It would have been obvious at the time of

invention to a person of ordinary skill in the art to modify Hillman by disposing the elongated sensor arrangement in a quartz tube for the purpose of enabling the UV sensors (63) to detect the radiation from the UV emitters (44-47).

Regarding claim 11, Fig. 4 of Hillman discloses the UV emitters (44-47) are disposed transverse to a direction of flow of the fluids in the flow channel. It should be noted that the direction of flow of the fluids is shown by the arrows within the tubes. It should further be noted that although most of the path of the fluid within the tubes is substantially parallel to the tubes, the net result is of a transverse direction from inlet (25) to outlet (25').

Regarding claim 12, Fig. 4 of Hillman discloses the at least one elongated sensor arrangement (13) is disposed transverse to a direction of flow of the fluids in the flow channel. It should be noted that the direction of flow of the fluids is shown by the arrows within the tubes. It should further be noted that although the net result of the path of the fluid along the elongated sensor arrangement (13) is parallel from inlet (25) to outlet (25'), a majority of the direction of flow is transverse to the elongated sensor arrangement (13) so that the fluids may flow parallel to the tubes.

Regarding claims 13 and 17, Fig. 5 of Hillman discloses the at least one elongated sensor arrangement (13) is provided with a support plate that carries the UV sensors (63) (see col. 6, lines 10-36). It should be noted that Fig. 5 only depicts one sensor. However, Fig. 2 of Hillman shows that each UV emitter has a corresponding sensor (63 a-d).

Regarding claim 15, Fig. 8 of Hillman discloses the circuitry of the device where each of the UV sensors (63) is provided with a current/voltage transformer (AC power) and a digital module (79) (see col. 7, lines 60-62). It should be noted that a current/voltage transformer is inherently present in order to power the sensor to detect the UV radiation.

Regarding claim 16, Fig. 2 and Fig. 8 of Hillman discloses at least one guide sensor (65) (see col. 6, lines 37-40) is disposed externally of the at least one elongated sensor arrangement (13), and wherein the at least one guide sensor detects UV radiation emitted by the UV emitters (44-47), relative to which radiation individual ones of the UV sensors (63) are adapted to be calibrated (see col. 7, lines 48-59).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hillman in view of Prieve as applied to claim 9 above, and further in view of Ifill et al. (US Pat 5,019,256, hereinafter Ifill).

Regarding claim 14, a further difference between Hillman and the claimed invention is the at least one elongated arrangement is disposed between two groups of UV emitters. However, in the same field of endeavor, Fig. 1 of Ifill discloses a rack assembly of UV emitters to treat water. It would have been obvious to an ordinary artisan at the time of invention to modify the invention of Hillman by having multiple rows of emitters for the purpose of increasing the amount of water being treated at one time. Furthermore, it would have been obvious at the time of invention to a person of ordinary skill in the art to have the elongated sensor arrangement disposed between

two groups of the UV emitters, wherein the support plate carries the UV sensors (63) on two oppositely facing flat sides thereof, and wherein the UV sensors of a given flat side of the support plate face a respective one of the groups of UV emitters for the purpose of decreasing the number of essential parts, thereby reducing cost.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanway Chang whose telephone number is (571)270-5766. The examiner can normally be reached on Monday to Friday 7:30 AM till 4 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hanway Chang  
June 30, 2009  
/H. C./  
Examiner, Art Unit 2881

/ROBERT KIM/  
Supervisory Patent Examiner, Art Unit 2881